

# Data Collection Best Practices With the Latest Trimble® Software

November 22, 2010

Trimble® has designed and created a new post-processing engine for Pathfinder Office® 4.2 and later and GPS Analyst™ 2.2 and later called Trimble DeltaPhase™. This latest technology allows Trimble users to achieve higher accuracy and better position yield resulting in higher productivity without having to upgrade existing hardware.

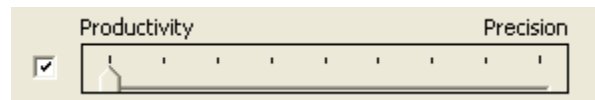
In order to best take advantage of this new technology and get the most from your Trimble receiver, it is important to have settings correct and practice good data collection. Trimble recommends the following to ensure the highest accuracy and productivity.

## GPS Settings:

*Note: If you are using a SiRF receiver (Juno™, Nomad®, XC card, XB or Yuma®), you will not be able to configure the GPS Settings. Once TerraSync™ connects to one of these receivers, the masks are automatically opened to the widest possible settings to ensure the highest productivity.*

In the Setup Section of TerraSync or GPSCorrect™, tap on GPS Settings. This will open the GPS Settings form.

Set the GPS slider bar all the way to the left in the high productivity position. This will open the PDOP, SNR and elevation masks as far as possible for your receiver.



The DeltaPhase post-processing engine has the ability to select and use the best GPS measurements. If you move the slider bar to the right, you restrict the logging of positions and can actually *decrease* your post-processed accuracy.

*Note: If you are not post-processing your data, you will want to keep your slider bar in the middle to ensure you collect only high quality positions in real-time.*

## Antenna Settings:

In the Setup Section of TerraSync or GPSCorrect, tap on Logging Settings. This opens the Logging Settings form.

With the latest software, it is important to have an accurate antenna height and antenna type. Entering an incorrect external antenna type may decrease the accuracy of your post-processed data. To adjust these settings, tap the wrench next to Antenna Height and adjust accordingly.

## Antenna Orientation:

It is important to keep the GPS antenna correctly oriented to the sky *even between features*. If the antenna is pointed towards the ground or put in a pocket or backpack when moving from one feature to the next, it can pick up multipath or other bad signals and *decrease* the accuracy of your post-processed

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data. You should consider disconnecting GPS rather than walk with the antenna pointing toward the ground. Note that the antenna in the Juno series is actually located in the top of the unit; therefore, the Juno should be held vertical for the best accuracy.

### Collecting Between Feature Measurements:

Trimble recommends collecting 30 to 60 seconds of good, quality GPS measurements between difficult features. The latest versions of TerraSync and GPSCorrect are always logging these measurements when a file is open.

Collect good measurements out in the open while walking to the tough feature, collect the feature, then collect more good measurements while walking back into the open.

Good data before and after the feature helps the DeltaPhase post-processing engine smooth out jumps in the data.

### How long should a point feature be logged?

This depends on the CEA (current estimated accuracy) or PPA (post-processed accuracy) that is showing in the upper right corner of the screen.

If it is well under what you need, collecting only 5 seconds of data is more than enough if you also have good data before and after the feature. In good conditions, averaging more positions will not improve the accuracy.

If you are in a difficult environment, and the CEA or PPA is less than desirable, log for 15 or 30 seconds. By doing this, you increase the likelihood of getting some good positions that will be used instead of the inaccurate ones. You may acquire more satellites by standing still a little longer, and multipath may be reduced by averaging.

### Required settings in legacy versions of TerraSync:

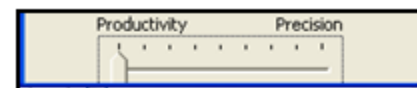
You can take advantage of the improved post-processing in the latest version of Pathfinder Office even if you are running an earlier version of TerraSync. The following settings are required in TerraSync 4.02 and earlier.

*Note: The Juno SB/SC/SD are the only SiRF receivers that can run an older version of TerraSync and get higher accuracy from the DeltaPhase post-processing. If you are running a Juno with TerraSync 4.02 or earlier, you will only need to make sure you have Between Feature Logging set to 1 second.*

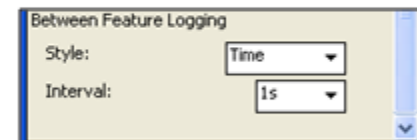
### Should I always postprocess my data?

Remember that SiRF receivers (Juno, Nomad, XC card, XB and Yuma) do not have multipath rejection. It is possible for post-processing to magnify errors in data collected in a high multipath environment. If you are using a SiRF receiver in a high multipath environment, you may find that the original data is of higher quality than post-processed data.

1. Wide open mask settings



2. Not in Feature positions set to log at 1s



3. Carrier Logging on

